



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/633,527	08/07/2000	Jacob C. Bortscheller	RD 27696/GLO 2 0031	3901

7590 01/02/2003

Scott A McCollister Esq
Fay Sharpe Fagan Minnich & McKee LLP
1100 Superior Avenue
7th Floor
Cleveland, OH 44114-2518

EXAMINER

ROY, SIKHA

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 01/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/633,527	BORTSCHELLER ET AL.
	Examiner	Art Unit
	Sikha Roy	2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 04 October 2002.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-17 and 23 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) 18-22 are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.

4) Interview Summary (PTO-413) Paper No(s) _____.

5) Notice of Informal Patent Application (PTO-152)

6) Other: _____.

DETAILED ACTION

The Amendment, filed on October 4, 2002 has been entered and acknowledged by the Examiner.

Election/Restrictions

Applicant's election with traverse of Group I (Claims 1-17) in Paper No. 4 is acknowledged. The product as claimed can be made by a materially different process in which a preformed (previously cured) layer of phosphor-containing material is joined to a light emitting component.

The requirement is deemed proper and is therefore made FINAL. Claims 18-22 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a non-elected group II.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 1 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 09/642,901 in view of U. S. Patent 6,319,425 to Tasaki et al.

This is a provisional obviousness-type double patenting rejection.

Regarding claim 1 both instant application and the copending Application No. 09/642,901 claim a light source comprising light emitting component, phosphor containing material positioned to receive light emitted by the light emitting component converting at least a portion of the light to a light of different wavelength. The instant application claims the thickness of the phosphor-containing material varying in relation to the intensity of the emitted light. Tasaki et al. disclose (column 8 lines 63-65) that the thickness of the fluorescing layer when partially varied results in change in intensity of the emitted light. Thus it would have been obvious to one of ordinary skill in the art at the time of invention to include the thickness of the phosphor containing material as disclosed by the copending application having thickness changing with the intensity of light.

Claim 2 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 3 of copending Application No. 09/642,901 in view of U. S. Patent 6,319,425 to Tasaki et al. The instant application and the copending application disclose light emitting component selected from the group consisting of light emitting diodes and laser diodes.

Claim 7 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending

Application No. 09/642,901 in view of U. S. Patent 6,319,425 to Tasaki et al. The instant application in claim 7 and the copending application in claim 1 disclose a layer of light transmissive material intermediately the light emitting component and the phosphor-containing material.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7,9-16 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent 5,959,316 to Lowery in view of U. S. Patent 6,319,425 to Tasaki et al.

Regarding claim 1 Lowery discloses (column 2 lines 3-32, Figs. 1 and 2) a light source (lamp 10) comprising a light emitting component (LED 18) and a phosphor-containing material (fluorescent material 24) converting light emitted at predetermined wavelength by the LED into another wavelength (column 4 lines 4-8). The phosphor containing material has thin areas at 40 and 42 and thick area at 44.

Claim 1 differs from Lowery in that Lowery does not exemplify the thickness of the phosphor-containing material varying in relation to the intensity of light emitted by the light-emitting component.

Tasaki et al. in analogous art of light-emitting diodes disclose (column 2 lines 24-30, column 4 lines 21-26, column 8 lines 63-67) that a color variation occurs between the lead end and side surface of a LED coated with a cap including fluorescent material and the thickness of the fluorescent color cap can be varied to change the intensity of the color. It is to be noted this provides the benefit of controlling the luminescent color of the emitted light.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to change the thickness of the phosphor-containing material of the lamp of Lowery according to the intensity of light as suggested by Tasaki et al. for controlling the luminescent color of the emitted light and hence producing uniform white light.

Referring to claim 2 Lowery discloses (column 1 line 46) the light emitting component being light emitting diode.

Regarding claim 3 Lowery discloses (column 2 lines 17-20, column 3 lines 25-27) the phosphor-containing material (fluorescent material 24) is a viscous UV cured resin containing particles of phosphor.

Regarding claim 4 Lowery discloses (column 2 lines 10-14) that the light emitting component (LED 18) produces a blue light and the light curable material containing phosphor is UV curable resin (column 3 lines 26,27).

Regarding claim 6 Lowery discloses (column 2 line 18) YAG/Gd: Ce phosphor which is known to be yellow emitting phosphor as is evidenced by U. S. Patent 6,294,800 to Duggal et al.

Referring to claim 7 Lowery discloses (column 3 lines 6-12 Fig. 3) a layer of light transmissive material (transparent spacer 50) intermediate between the light emitting component (LED 18) and the phosphor-containing material (fluorescent material 52).

Referring to claim 9 Lowery discloses in Fig 2 that the phosphor-containing material 24 surrounds the front and the sides of the light-emitting component 18.

Regarding claim 10 Tasaki et al. disclose (column 5 lines 39-42) in Fig. 5 that the phosphor- containing material has thickness greater in the region 13 (leading end portion) when the intensity of the emitted light is higher and less in the region (side surface) where the intensity of the emitted light is lower.

Claim 11 recites the same limitation as of claim 2 and hence is rejected for the same reason.

Claim 12 recites the same limitation as of claims 3 and 10 and hence is rejected for the same reason (see rejection of claims 3 and 10).

Claim 13 recites the same limitation as of claim 4 and hence is rejected for the same reason.

Claim 15 recites the same limitation as of claim 6 and hence is rejected for the same reason.

Claim 16 recites the same limitation as of claim 7 and hence is rejected for the same reason.

Claims 5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent 5,959,316 to Lowery and U. S. Patent 6,319,425 to Tasaki et al.

Lowery and Tasaki et al. disclose the claimed invention except for dental adhesive as UV-curable material. The selection of known materials for a known purpose is generally considered to be within the skill of the art. *In re Leshin*, 125 USPQ 416. It would have been obvious to use dental adhesive because the selection of known materials for a known purpose is within the skill of art.

Claims 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent 5,959,316 to Lowery U. S. Patent 6,319,425 to Tasaki et al. in view of U. S. Patent 5,787,104 to Kamiyama et al.

Regarding claim 8 Lowery and Tasaki et al. do not exemplify the LED die attach material formed from a material curable by light emitted by the light-emitting component.

Kamiyama et al. in analogous art of semiconductor light emitting element disclose (column 13 lines 61-66 Fig.21) a die (semiconductor laser 551) mounted on a sub-mount 552 with an attach material which is UV curable resin 554. It is further noted that the UV-curable resin after being irradiated with UV light from the die 551 secures the die to the sub-mount 552.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to include a die attach material from a material curable by light emitted by the light emitting component for securing the light emitting component to the mount.

Claim 17 recites the same limitation as of claim 8 and hence is rejected for the same reason.

Claim 23 essentially recites the same limitation as of claim 10. The Examiner notes that the claim limitation that "phosphor-containing layer formed by energizing the

light emitting component to cure a portion of the curable material and removing the uncured curable material " is drawn to a process of manufacturing which is incidental to the claimed apparatus. It is well established that a claimed apparatus cannot be distinguished over the prior art by a process limitation. Consequently, absent a showing of an unobvious difference between the claimed product and the prior art, the subject product-by-process claim limitation is not afforded patentable weight (see MPEP 2113). Therefore, it is the position of the examiner that it would have been obvious to one of ordinary skill in the art that the lamp disclosed by Lowery and Tasaki et al. is at least a fully functional equivalent to the Applicant's claimed light source.

Response to Arguments

Applicant's arguments with respect to claims 1,10 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following prior art references are cited to show the state of the art with respect to UV/blue LED phosphor device.

U. S. Patent 5,998,925 to Shimizu et al.

U. S. Patent 6,066,861 to Hohn et al.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikha Roy whose telephone number is (703) 308-2826. The examiner can normally be reached on Monday-Friday 8:00 a.m. – 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (703) 305-4794. The fax phone number for the organization is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Sikha Roy
Patent Examiner
Art Unit 2879



VIP PATEL
PRIMARY EXAMINER